

# Carbon Footprint

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A carbon footprint has been defined as, "the total sets of greenhouse gases emissions caused by an organization, event, product or person." The total carbon footprint of the earth cannot be calculated because of the large amount of data required, and the fact that carbon dioxide can be produced by natural occurrences. So we do not know exactly the amount of carbon footprint we humans have produced. Your carbon footprint is the sum of all emissions of CO<sub>2</sub> (carbon dioxide), which were induced by your activities in a given time frame.

Each of the following activities add 1 kg of CO<sub>2</sub> to your personal carbon footprint:

- Travel by public transportation (train or bus) a distance of 10 to 12 km (6.5 to 7 miles)
- Drive with your car a distance of 6 km or 3.75 miles (assuming 7.3 litres petrol per 100 km or 39 mpg)
- Fly with a plane a distance of 2.2 km or 1.375 miles.
- Operate your computer for 32 hours (60 Watt consumption assumed)
- Production of 5 plastic bags
- Production of 2 plastic bottles
- Production of 1/3 of an American cheeseburger (yes, the production of each cheeseburger emits 3.1 kg of CO<sub>2</sub>!)

In other words: When you drive a car, the engine burns fuel which creates a certain amount of CO<sub>2</sub>, depending on its fuel consumption and the driving distance. (CO<sub>2</sub> is the chemical symbol for carbon dioxide). When you heat your house with oil, gas or coal, then you also generate CO<sub>2</sub>. Even if you heat your house with electricity, the generation of the electrical power may also have emitted a certain amount of CO<sub>2</sub>. We need some quantities of CO<sub>2</sub>.

## Factors and Solutions to Reduce Carbon Footprint

Meat and climate change

Meat production is a major contributor to climate change. It is estimated that livestock production accounts for 70 per cent of all agricultural land use and occupies 30 per cent of the land surface of the planet. Because of their sheer numbers, livestock produce a considerable volume of greenhouse gases (such as methane and nitrous oxide) that

contribute to climate change. In fact, the United Nations Food and Agriculture Organization (FAO) has estimated that livestock production is responsible for 18% of greenhouse gases.

### **Livestock Animals**

The growing of livestock and other animals for food is also an extremely inefficient process. For example, it takes approximately five to seven kilograms of grain to produce one kilogram of beef. Each of those kilograms of grain takes considerable energy and water to produce, process, and transport.

As meat consumption has grown around the world, so has its climate impact.

The problems with chemical agriculture

Other agricultural practices can impact the climate. Synthetic pesticides and fertilizers are widely used in agriculture, and are often made from fossil fuels. Manufacturing and transporting these chemicals uses significant quantities of energy and produces greenhouse gases. Not surprisingly, studies have shown that chemical farming uses considerably more energy per unit of production than organic farms, which do not use these chemical inputs. In addition, the use of synthetic nitrogen fertilizers in soils produces nitrous oxide, a greenhouse gas that is approximately 300 times more powerful than carbon dioxide at trapping heat in the atmosphere.

Organic farms, on the other hand — which rely on natural manure and compost for fertilizer — store much more carbon in the soil keeping it out of the atmosphere.

### **Food that's closer to home**

Where your food comes from is also a factor. Currently, the average meal travels 1200 km from the farm to plate. Food that is grown closer to home will therefore have fewer transportation emissions associated with it, and also be fresher and support local farmers. And as the distance food travels decreases, so does the need for processing and refrigeration to reduce spoilage.

### **Local or organic: which is better for the climate?**

While it's good to buy locally grown food for many reasons, 'food miles' (the distance food is transported from the time of its production until it reaches the consumer) actually make up a relatively small percentage of the overall carbon footprint of food — approximately 11% on average, according to studies. How the food is grown makes up a much larger percentage — roughly 83%.

For example, one study showed that lamb raised in New Zealand and shipped 18,000 kilometers to the UK still produced less than one quarter of the greenhouse gases than local British lamb. Why? Because local flocks were fed grains, which take a lot of energy to grow, while the New Zealand flocks were grazed on grass. Shipping the lamb to the UK was responsible for only 5% of the overall greenhouse gases, whereas 80% of the emissions were from farm activities. Similar lifecycle assessments have found the same results for other foods. One assessment done for packaged orange juice found

that over a third of the lifecycle emissions came from just the synthetic fertilizer used on the orange groves.

Choosing to buy food that is organically grown can therefore be a better choice for the climate. But if possible, buy food that is organic and local.

### **Switch from Cars to bikes**

Breaking addictions can be tough, but you don't have to go cold turkey. Reducing our dependence on oil means switching to cleaner energy sources, and reducing our consumption of energy as much as we can.

Cars are the largest source of greenhouse gases and other air pollutants. Each day Canada's 14 million cars lead to:

- Greenhouse gas emissions that cause climate change. A recent study found that over 45 per cent of Canada's habitat could be lost by the end of this century due to climate change.
- Premature deaths of up to 16,000 Canadians each year. Tens of thousands more suffer from respiratory ailments such as asthma that are associated with and aggravated by air pollution.
- More smog days coupled with more heat waves.

### **What can I do?**

Try leaving your car in the driveway for just one trip a week. Walking and jogging are simple alternatives to driving and great ways to get in shape. Consider these tips before you take the first step:

- Make a plan. The average pedestrian can walk one kilometre in 10 minutes so estimate how far you'll need to walk and how long it will take to get there.
- Save on gym fees. A 125-lb. person walking at a brisk pace for only 30 minutes burns 150 calories; a 196 lb. person burns 235 calories. Visit the [Walking Calorie Calculators](#).
- Get fit. Thirty minutes of walking per day cuts the risk of heart disease by up to half, and reduces the risk of some cancers, diabetes, obesity, and osteoporosis.
- Learn more. Walking is a great way to get to know your neighborhood and community. In addition the pace of walking is conducive to visiting or contemplation.
- What about the kids? Getting your kids off the couch and outdoors doesn't need to be painful. Share what you've learned about the environmental and health benefits and get them involved in planning a car-free day. They might enjoy working on a project with you and you'll spend quality time together.

### **Cycle your way to a healthier planet**

Many of our car trips are for distances less than three kilometers — well within the range of an easy bike ride. In just 15 minutes the average person can bike 3.5 km. Here are some other benefits to cycling to your destinations:

- Get there quick! For trips of up to 10 km, cycling is usually the fastest way to travel within the city.
- Save \$\$\$\$. It costs about \$200 per year to maintain a bike, plus an additional \$300 for accessories — compared to \$7,500 the average Canadian pays to own a car.
- Improve your health! 30 minutes of brisk cycling several times a week reduces the risk of developing coronary heart disease, adult diabetes and obesity by as much as 50%.

New and improved appliances use less electricity than older models. You can save energy by using your existing appliances more wisely and by investing in modern Energy Star approved appliances.

#### **Refrigerators**

Refrigerators use the most energy of any home appliance. Here are some tips for efficient refrigerator use:

- Place refrigerators out of direct sunlight and away from the stove and other heat-producing appliances.
- Decide what features you really need and use. Through-the-door features like cold water or automatic ice dispensers can increase electricity usage by as much as 20 per cent compared to similar models without these extras.
- Buy an Energy Star approved refrigerator.
- If you buy a new refrigerator, unplug your old one. There is no energy efficiency in continuing to use your energy guzzler.
- Find cold storage spaces to store fresh foods safely without using any electricity.

#### **Dishwashers**

Energy Star dishwashers use 25 per cent less energy than other new models! Here are some other energy-saving tips:

- Always run your dishwasher with a full load. Most of the energy used by a dishwasher is spent heating water, and since you can't decrease the amount of water used per cycle, filling your machine is more effective than running half-loads.
- Use the air-dry option instead of the heat-dry, rinse-hold and pre-rinse features. If your dishwasher doesn't have this option, prop the door open after the final rinse cycle to dry your dishes.

#### **Washers and Dryers**

Energy Star designated washers are a wise investment for several reasons: They clean clothes using 50 per cent less energy than standard machines; Full-sized Energy Star washers use 72-100 litres of water per load, while their standard counterparts use 160 litres; and Energy Star washers extract more water from clothes during spin cycles, reducing drying time and saving energy and wear-and-tear on your clothes.

Front-loading tumble washers, use an average 104 litres of water per load, while top-loaders use 160 litres. Front-loading machines also use a third less water, a third less heat energy and a third less detergent!

- Clothes washers are more efficient when operated with full loads.
- Wash clothes in cold water — yes, they will still get clean!
- Use environmentally safe detergents and whiteners that are kind to aquatic life and your clothes.

Clothes dryers don't have Energy Guide labels on them because the energy efficiency of different models are essentially the same. But not all clothes dryers are created equally.

Learn more about dryers features and functions that make them more energy efficient. Look for clothes dryers with moisture sensors that automatically stop drying when they sense a load is dry enough.

Or better still, don't use a dryer where possible. Go old school and make use of the sun's warmth and wind to dry your clothes on a line outside. Or if that's not possible where you live, use a drying rack indoors to allow your laundry to dry in the warmth of a room or in a sunny window. You'll be surprised how quickly most clothes can air dry without the use of a dryer!